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ChemRisk/Shonka Research Associates, Inc., Document Request Form

(This section to be completed by subcontractor requesting document)

J. Lamb / K-25 CEP

Requestor / Document Center (is requested to provide the following document)

Date of request 4/28/95 Expected receipt of document 5/20/95

Document number none Date of document ~~n/a~~ 1982-1984

Title and author (if document is unnumbered)

UCC-ND Environmental Program Review

(A) 3 K-25 documents: 1) Ltr from W J Thomas to R A Jordan dated 8/12/82 — "UCC-ND Environmental Program Review of ORGDP; 2) Ltr from R A Jordan to W J Thomas dated 7/30/82, UCC-ND Environmental Program Review of ORGDP; and 3) Ltr from R A Jordan to W J Thomas dated 8/24/84, Energy Systems Environmental Program Review of ORGDP

(This section to be completed by Document Center)

Date request received 4/28/95

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Date submitted to HSA Coordinator 5/2/95 Returned from Y-12 ~~Sent to Y-12 for processing on 05/03/95~~ Recvd 5/15/95

(This section to be completed by HSA Coordinator)

Date submitted to CICO K-25 5/16/95 Y-12 - 1 ltr sent to Y-12 for processing 5/16/95 X-10 - 2 ltrs sent for processing 5/16/95

Date received from CICO 5-18-95

Date submitted to ChemRisk/Shonka and DOE 5-22-95

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

(B) Ltr from A A Lee to R A Jordan dated 10/29/82 UCC-ND Environmental Program Review of Y-12 — Sent to Y-12 for processing

(C) 2 Ltrs: 1) Ltr from R A Jordan to H Postma dated 10/27/82 UCC-ND Environmental Program Review and (2) Ltr from Jordan to H. Postma dated 11/19/84, Energy Systems External Env. Program Review — Sent to ORNL for processing

UNION CARBIDE

NUCLEAR DIVISION

INTERNAL CORRESPONDENCE

July 30, 1982

W. F. Thomas, K-1001, MS-134, ORGDP

UCC-ND Environmental Program Review of ORGDP

As required by UCC policy and DOE Order 5482.1A, a review of the Oak Ridge Gaseous Diffusion Plant's environmental program was conducted during the period June 15-17 by a four-man review team representing the UCC-ND Health, Safety, and Environmental Affairs Office.

The attached report of the review team reflects that the Oak Ridge Gaseous Diffusion Plant administers effective, innovative, high-quality, environmental and waste management programs. We will be happy to discuss this report with you or members of your staff.

Please inform me of your plans and/or actions taken to implement the recommendations noted in the report.

The cooperation extended by members of your staff during the review is appeciated.

R. G. Jordan, 9704-2, MS-21, Y-12

RGJ:cm

Attachment

cc/att: J. D. Baker, UCC, HSEA P-2, Old Ridgebury Road, Danbury, CT 06817
G. G. Fee, 9704-2, MS-14, Y-12
R. F. Hibbs, 9704-2, MS-4, Y-12
C. C. Hopkins, K-1001, MS-133, ORGDP
G. R. Jasny, 9704-2, MS-4, Y-12
H. Postma, 4500-N, I-210, ORNL
C. R. Richmond, 4500-N, I-206, ORNL
K. W. Sommerfeld, 4500-N, K-214, ORNL
C. D. Zerby, C-100, 127, PGDP
File - RGJ - NoRC

Prepared by Union Carbide Corporation-Nuclear Division, operating contractor for the U.S. Department of Energy under U.S. Government Contract No. W-7405-eng-26.

REPORT OF ENVIRONMENTAL PROGRAM REVIEW

OF

OAK RIDGE GASEOUS DIFFUSION PLANT

Oak Ridge, Tennessee

June 15-17, 1982

BY

H. H. Abee

H. H. Abee, UCC-ND Health, Safety, and Environmental Affairs

R. C. Baker

R. C. Baker, PGDP Environmental Coordinator

M. Sanders

M. Sanders, Y-12 Environmental Coordinator

C W Weber

C. W. Weber - UCC-ND Environmental Analysis Coordinator

INTRODUCTION

In accordance with DOE Order 5482.1A and Corporate Environmental Affairs Policy, a review of the Oak Ridge Gaseous Diffusion Plant Environmental Program was conducted during the period June 15 through 17 by a four-man team representing the UCC-ND Health, Safety, and Environmental Affairs office. The team members included H. H. Abee, UCC-ND HSEA; R. C. Baker, PGDP Environmental Coordinator; M. Sanders, Y-12 Environmental Coordinator; and C. W. Weber, UCC-ND Environmental Analysis Coordinator.

A critique of the review team's findings was presented on June 18 to W. F. Thomas, ORGDP Plant Manager, and members of the ORGDP staff including A. J. Legeay, L. W. Long, M. E. Mitchell, R. W. Morrow, A. A. Christie, and A. M. Jackson.

SUMMARY

The environmental review of the Oak Ridge Gaseous Diffusion Plant consisted of extensive discussions with Environmental Management, Operations, Maintenance, and Analytical Laboratory personnel on programs and equipment related to environmental protection and waste management. Tours of waste management facilities, environmental monitoring equipment, emergency response equipment, and hazardous materials storage and containment areas provided an opportunity to review the operational status of these facilities. During the program review, emphasis was placed on the following elements: organization and commitment, procedures, training, communications, facilities/equipment, NPDES, laboratory support, air emissions, RCRA, PCB, and environmental monitoring.

The Environmental Management Group at ORGDP is well staffed with competent, highly motivated personnel who conduct an aggressive, high quality program. Communications at all levels are excellent and an environmental awareness and a positive attitude was found to exist in those departments where environmental concerns can originate. Management support is excellent. All key elements of a good environmental program are in place and are functioning in an effective manner. A few minor recommendations and suggestions are contained in the body of the report.

RECOMMENDATIONS

1. It is recommended that the sampling line to the purge cascade sampler be limited to as short a length as practicable to enhance the representativeness of the sample collected and that the sampling equipment be placed in some type of instrument rack to improve the appearance of the sampling station.

   Basis - During the tour of monitoring and pollution control equipment, it was observed that the sampling line from the exhaust duct sampling port to the sampling equipment was about 20-25 feet in length. Such a long sampling line can result in absorption and perhaps subsequent release of material such that the sample collected will not be representative of the material being released. The sampling equipment was situated on a small table giving the appearance of a makeshift arrangement. Enclosure of the sampling equipment in some type of instrument rack would provide a more durable sampling station of professional appearance to persons touring or inspecting the area.

2. Although not entirely environmentally related, the following recommendation is offered toward improvement of the laboratory support R & D function: A development budget should be provided for the Analytical Chemistry Department to permit R & D efforts, at the discretion of that department, directed toward maintaining modern support services and investigating the application of new methodology.

   Basis - A competent chemical analysis laboratory, which is responsible for the support of diverse activities in environmental control and other areas, will become mediocre unless it can examine the application of new methods and even untried techniques. Much of the methodology recommended by EPA and other regulatory agencies is approaching reliable maturity only through the development and reporting efforts of industrial laboratories. Without a separate development account, against which such activities can be charged at ORGDP, the work must be borne by the expense accounts or by customer accounts; either alternative could be unfair and unpopular.

FINDINGS

Organization and Commitment

The Environmental Management Group at ORGDP is well staffed with competent, highly motivated personnel and reports at an organizational level which establishes the authority and responsbility vital to an effective environmental program. Management administrative and fiscal support is apparent.

The organization of design review teams and the assignment of operations representatives to follow environmentally related projects establishes an excellent mechanism to provide necessary operational input to projects in the design stage and is to be commended.

The recent addition of two technical personnel to the RCRA and hazardous materials control program staff is noteworthy and an indication of management support to the environmental protection program.

Procedures

The collection of appropriate environmentally related procedures into a single manual, which is currently under way, in conjunction with certain program criteria documents developed by the Environmental Management staff will provide excellent auditable documentation of the environmental management program. The present effort toward formalization of procedures using the Corporate Environmental Affairs Manual as a guide is commendable.

In discussing the procedures it was noted that no specified procedure review program exists and some of the procedures have not been updated in several years. Development of a system for periodic review and updating of procedures should be considered.

Training

The ORGDP has an aggressive environmental training program utilizing all types of communication media. General training in environmental protection is provided by the Enviromental Management Group while specific training unique to divisional or facility functions is a line responsibility. Training is generally documented with a list of attendees and a memo to the file. Plans are under way to improve training documentation. The review team pointed out that a requirement for testing is frequently being incorporated in new regulations on training and noted that some type of testing approach may be needed in the environmental training program in the future. A review of a slide/tape program on hazardous materials awareness provided an example of the high quality of the training effort.

Communications

Communication and cooperation among groups, both horizontally and vertically, appear to be excellent at all levels. Communication with employees on a plant-wide basis through the use of bulletins on environmental matters is noteworthy. Consideration should be given to readdressing certain issues covered by previous bulletins such as spill reporting and, from time to time, the designation of a week for reemphasizing environmental issues.

While communications were generally found to be excellent, one aspect of managerial responsibility should be reviewed: that is, the responsibility to exchange information at the very beginning of an environmental project so that the interests of supporting organizations, such as the analytical

laboratories (Technical Services Division) or the sampling groups (Technical Services or Operations), will be adequately represented at the project planning stage and later. While this communication responsibility is a matter of two-way exchange, the supporting organizations must assume an aggressive role in remaining informed. It is suggested that all organizations which might become involved in environmental projects, ensure that appropriate management personnel be included on the distribution list for all Engineering Service Orders (ESOs) pertaining to ORGDP, so they can select those projects which they should follow from the initiating stages.

NPDES

The records contained a listing of all effluents. This provided concise information to the reviewer. It was noted that proposed reduction in NPDES violations was contained in the responsible manager's MOPs and that, in fact, significant reduction from 1981 to the same period in 1982 was achieved. One sample station was visited, the layout observed, and the operating and maintenance system was reviewed. The system appears to be very well manned. At the station observed, range of flow measurement capability appeared to be somewhat narrow.

PCB

The PCB transformer inspection program was judged to be very good. Inspections are made at three-month intervals; and the number, type, and location of the very small leaks are documented. It was noted that the documentation included a diagram of each transformer with the location of each weep or leak. It was also noted that the K-25 transformers are not individually diked, but the area in which the transformers are located is diked. Curbing had been placed strategically to prevent towmotors and other industrial trucks from contacting vulnerable parts of the transformers. According to Operations supervision, no capacitor failures had been discovered this year.

The PCB inventory for 1979, 1980, and 1981 was examined. The inventory was very brief. While there appears to be some inconsistency in the completeness of information in this type report among UCC-ND installations, other available documentation appears to contain all the information that EPA requires.

Air Emissions

In the review of air emissions, it was noted that the State required as many as 53 permits. The reviewers concentrated their attention on the purge cascade effluent monitoring and must apologize for giving no attention to steam plant effluents. The environmental management group and the shift superintendents' organization are to be commended on their preselection of emergency air monitoring sites.

RCRA

Detailed procedures are in place for transportation, storage, and disposal of hazardous materials and wastes. Special procedures have been developed and written for disposal of explosive and other materials of unique hazard. Disposal of this type material is handled by chemical operations and guard force personnel under the supervision of the Shift Superintendent with guidance from Environmental Management. The program is in compliance with the intent of the RCRA regulations.

Laboratory Support

Recent reorganization in the ORGDP Chemical Analysis laboratories particularly addressed the mission-orientation of functions. Among significant changes, the analytical support for the environmental program was brought under one supervisor and much of the laboratory work was consolidated in one area. This has improved control and responsibility of the efforts and it has pointed-up the managerial commitment to the environmental protection program. All supervisors and analysts engaged in this activity were found to be competent, dedicated and responsive communicators.

EPA approved methods are being used for the measurement of parameters included on effluent permits; non-permit parameters are measured with EPA methods or established procedures traceable to EPA approved methods. Procedures are consolidated in readily available UCC-ND manuals. All samples are logged in and easily traced in the laboratory. After results are reported, all data are stored retrievably in one place. Analysts are alerted to watch for results which reflect an out-of-compliance condition, for prompt contact with the Environmental Management organization. Anomalies are handled professionally, often with confirmatory analyses, at the discretion of the customer and the laboratory.

Communications within the laboratory organizations and with the environmental customers are excellent, resulting in fully acceptable analytical turnaround times for both routine and special monitoring programs. Some consideration should be given to more frequent visits of the sample sites by laboratory personnel, to improve familiarity with the nature and significance of certain samples by the analytical groups.

The training of analysts and lab specialists in the range of analytical procedures is partially documented; retraining of employees as they are rotated among the many assignments should be documented for better QA auditability. Quality control of analysis is maintained through attention to proper calibration and use of standard reference materials, many of which are commercially supplied and submitted as disguised samples to the laboratory. It was noted that the measurement of radionuclide pollutants is not presently supported by an external QC program, although the quality of analyses seems adequately confirmed by internal control samples. It was agreed that an external radionuclide QC program would be designed soon, unless the presently suspended DOE Quality Assurance Program is reinstituted, with emphasis on radioactive species.

Facilities/Equipment

An extensive review of facilities and equipment was presented and much of this was observed during tours of the plant. Instrumentation inspection and calibration was discussed with reference to a schedule which occupied one full time instrument mechanic, especially selected for his skill and familiarity with the equipment. The monitoring equipment was generally well selected, properly placed and adequately maintained.

An area which should be improved as soon as possible is the sampling station for the top purge at K-29. This gas sampling arrangement appears to lack durability and the sampling lines are much too long to minimize problems of losses and memory in the monitoring of reactive gas constituents.

Although many aspects of environmental facilities and equipment are referred to in other parts of this review, special note should be made of the emergency equipment which was examined in its storage area. This equipment seems well selected and maintained in preparation to apply to emergencies such as oil spills or other releases. It is apparent that constructive planning has gone into this aspect of environmental control.

Environmental Monitoring

All aspects of the environmental monitoring program were reviewed and found to be of high quality. The current effort by the Environmental Management staff toward review and optimization of sample collection and analysis in all aspects of the monitoring program is to be commended.

Cy: R. C. Baker
M. Sanders
C. W. Weber

RGJ 8/17/82

UNION CARBIDE

NUCLEAR DIVISION

INTERNAL CORRESPONDENCE

1982 AUG 17 AM 10: 13

August 12, 1982

R. G. Jordan, 9704-2, MS 021, Y-12

UCC-ND Environmental Program Review of ORGDP

The UCC-ND report of the ORGDP environmental program review, which was transmitted by your letter of July 30, 1982, has been carefully reviewed by our Environmental Management staff. We appreciate the cooperative manner in which the review was conducted and the recommendations for improving our program. Our plans for implementing these recommendations are listed below.

- The sampling system for the purge cascade airborne effluent has been reevaluated and some changes have been made. The sample probes have been relocated to improve the representative nature of the sample; a second sampler has been installed to improve the overall reliability of the system; and a new sampler rack is being constructed and will soon be installed to improve the general appearance of the system. Shortening of the sample line was evaluated and determined to be impractical, but since it is thoroughly cleaned each time a sample is removed (daily), the potential for sample bias is considered to be negligible.

  A new purge cascade effluent scrubber system will be installed as an FY-1982 capital equipment item. This system will include a new sampler, which will be carefully designed and installed to ensure a continuous isokinetic sample.

- The concern for the development of necessary new analytical methodologies is appreciated and shared. For the past several years, such development activities have been a vital part of the ORGDP technical services program. The need for and conduct of such development work has generally been on a case-by-case basis and in support of all ORGDP programs, including the environmental management program. Since the primary function of the ORGDP Technical Services Division is to provide support to other programs, we believe that the development of new analytical methodologies should continue on an as-needed basis only as opposed to a general development program not necessarily related to ORGDP needs. Furthermore, we plan to continue to fund such development efforts on an individual basis and do not consider the establishment of a separate analytical development budget to be either necessary or desirable at this time.

Prepared by Union Carbide Corporation-Nuclear Division, operating contractor for the U.S. Department of Energy under U.S. Government Contract No. W-7405-eng-26.

- As noted in the subject report, the compilation of all ORGDP environmental procedures into a single manual is underway. When complete, this manual should provide a ready reference for effecting routine review and updating of these procedures.

- The inconsistency of the PCB inventory documents of the four UCC-ND facilities is a concern. In order to minimize this inconsistency, L. W. Long of the ORGDP Environmental Management staff is coordinating an effort by representatives from the UCC-ND facilities to establish general guidelines for preparation of the inventory document.

Please let me know if you have any questions concerning these plans or any additional suggestions for improving our environmental program.

W. F. Thomas, K-1001, MS 134, ORGDP (4-7930)

WFT:MEM:lc

cc: A. J. Legeay, K-303-7, MS 338, ORGDP
R. W. Levin, K-1004-A, MS 434, ORGDP
M. E. Mitchell - RC
File - WFT

MARTIN MARIETTA

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

August 24, 1984

W. F. Thomas

Energy Systems Environmental Program Review of ORGDP

As required by DOE Order 5482.1A, a review of the Oak Ridge Gaseous Diffusion Plant's environmental program was conducted during the period May 22-24 by a four-man review team representing the Energy Systems Environment, Safety, and Health office.

The attached report of the review team reflects that the Oak Ridge Gaseous Diffusion Plant administers effective, high-quality, environmental and waste management programs. We will be happy to discuss this report with you or members of your staff.

Please inform me of your plans and/or actions taken to implement the recommendations noted in the report.

The cooperation extended by members of your staff during the review is appreciated.

R. G. Jordan, 1000, MS-214A, ORNL (4-1645) - NoRC

RGJ:jct

Attachment

cc/att: R. G. Donnelly
G. G. Fee
W. F. Furth
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Oak Ridge K-25 Site
Oak Ridge, Tennessee 37831-7314
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY
under Contract DE-AC05-84OR21400

REPORT OF ENVIRONMENTAL PROGRAM REVIEW

OF

OAK RIDGE GASEOUS DIFFUSION PLANT

Oak Ridge, Tennessee

May 22-24, 1984

BY

H. H. Abee, Martin Marietta Energy Systems Environment, Safety, and Health

R. C. Baker, PGDP Environmental Coordinator

T. W. Oakes, ORNL Environmental Coordinator

C. W. Weber, Energy Systems Environmental Analysis Coordinator

INTRODUCTION

In accordance with DOE Order 5482.1A, an audit of the Oak Ridge Gaseous Diffusion Plant Environmental Program was conducted during the period May 22-24 by a four-man team representing the Energy Systems Environment, Safety, and Health Office. The team members included H. H. Abee, Energy Systems ESH; R. C. Baker, PGDP Environmental Coordinator; T. W. Oakes, ORNL Environmental Coordinator; and C. W. Weber, Energy Systems Environmental Analysis Coordinator. During certain periods of the audit, B. M. Eisenhower and W. F. Ohnesorge of the ORNL Department of Environmental Management substituted for T. W. Oakes whose presence was required elsewhere.

A critique of the audit team's findings was presented on May 24 to W. F. Thomas, ORGDP Plant Manager, and appropriate members of the ORGDP staff.

SUMMARY

The environmental audit of the Oak Ridge Gaseous Diffusion Plant consisted of discussions with Environmental Management, Process Support, Operations, and Analytical Laboratory personnel on programs, projects, and equipment related to environmental protection and waste management. Extensive walk-throughs and tours were conducted to review the operational status of waste management facilities, environmental monitoring equipment, steam plant, pollution control equipment and facilities, emergency response equipment, and hazardous materials storage and containment areas. During the audit, emphasis was placed on the following program elements: organization and commitment, procedures, training, communications, facilities and equipment, NPDES, laboratory and process support, air emissions, RCRA, PCB, and environmental monitoring.

The Environmental Management Department is staffed with competent personnel who conduct an aggressive program. Management commitment to a high quality environmental program is apparent. Environmental and waste handling procedures are documented and a program for review and updating exists. Communications within the Environmental Management Department and with other plant groups, both horizontally and vertically, appear to be excellent. Training activities in all program elements are of high quality and meet the necessary requirements. Planned coordination of training activities with the other health and safety disciplines and the use of a broader base of training resources is encouraging. The NPDES program is undergoing changes necessitated by the receipt of a new permit from EPA; however, these changes are being handled effectively. The RCRA program seems to be extremely strong and strategies for bringing the plant into full compliance with RCRA have been developed.

RECOMMENDATIONS

None. A number of suggestions for improvements or changes in program have been included in the findings section of the report and should be considered for action.

FINDINGS

Organization and Commitment

The Environmental Management Department at ORGDP is staffed with competent personnel who conduct an aggressive program. A high degree of interest and motivation is apparent. Each job function has been documented and a staff member has been designated as responsible for carrying out that function. A back-up staff member has been designated for each function also. One additional clerk has been added to the staff and the timely addition of an environmental engineer to fill a currently open requisition is encouraged.

Management commitment to a high quality environmental program is demonstrated by the high priority given to needed environmental projects, the employment of an adequate environmental staff, and the administrative and fiscal support which is provided to carry out the program. Environmental standards are contained in the Measures of Performance of appropriate Departmental and Division Managers.

Procedures

The Environmental Management Department (EMD) maintains a manual which contains copies of environmentally-related procedures from all ORGDP Divisions, the ORGDP Standard Practice Procedures, Company Standard Practice Procedures and ORGDP supplements thereto, and EMD operating procedures. A system for periodic review and updating of procedures is in place. The last revision to the procedures manual was made in 1983. Criteria documents have been prepared for four important environmental areas or subjects (for example, PCB's) and others are in the planning stage. This effort is commendable and should be pursued.

Training

The training of the ORGDP Environmental Management staff and other plant participants in the environmental program was not addressed as a singular topic in this review, but it was identified as an ongoing activity in a variety of specific programs. Emergency drills involving simulated spills or gas releases, emergency squad orientation on use of booms and skimmers in event of oil spills, and preparation of Emergency

Preparedness Manuals all involve participation by Environmental Management staff and are related to the overall training effort.

The RCRA program is aided through the use of a commercial slide/tape program for general orientation. Specific operational training is conducted by the supervisors of RCRA-related facilities, such as the K-1407-A Neutralization Pit, the K-1232 Treatment Plant, and the Andco Chromate Reduction System. On these and other plant operations, specific training is implemented through the use of SPPs, SOPs, and JSAs, which cover environmental concerns as necessary. It is suggested that attention be given to the matter of follow-up to ensure that adequate documentation is being made of training, especially where it is a regulatory requirement such as for RCRA and in other areas where it would aid in supervisory control of that need.

The training of contractor personnel in the Scrap Metal Program is conducted by the Environmental Management staff. It covers emergency actions and strict adherence to protective measures such as hardhats, safety glasses and respirators, and contractor supervisor responsibility. This training is well documented. Other evidence of effective environmental training at ORGDP is the waste disposal program which is being coordinated by the EMD. Through perseverance and tactful communication by the waste disposal coordinator, all solid wastes, including sanitary wastes, seem to be under control with special emphasis on segregation of hazardous materials.

A particularly encouraging aspect of the training responsibility was noted in the future plans of the Environmental Management Department. Efforts will be made to coordinate personnel training with the Industrial Hygiene Department because of similar interests in hazardous chemicals, etc. Training records on individuals and schedules for retraining will be computerized for convenient data entry and retrieval, more training will be formalized to ensure consistent presentation and proper coverage, and a broader base of training resources will be tapped. More materials available from counterpart departments at other plants and information available from the several libraries will be included. These efforts toward improving the training program and making it more cost-effective are commendable.

Communications

Communications within the Environmental Management Department and with other plant groups, both horizontally and vertically, appear to be excellent. The use of a list of programs, projects, and tasks showing the person with the primary responsibility (and the back-up person) for each listed item is a very effective internal communications tool. Plant bulletins are used to communicate with all employees on important environmental areas or questions. Noteworthy 1983 bulletins examined included such areas as spill reporting, waste disposal, and TSCA substantial risk reporting. It was apparent that a concerned and cooperative administration of the waste disposal system provided a means of maintaining interdepartmental communications. The Environmental Management

Department communications and contacts with the Energy Systems ESH organization, the DOE, EPA, and the TDHE appear to be appropriate and through proper channels. The more recent addition of the TMIS electronic mail system provides a rapid means of communicating important environmental information to Energy Systems management and environmental staff personnel. The increasing utilization of the system is noteworthy and encouraged.

Facilities and Equipment

Most of the pollution control facilities, equipment, and emergency equipment were reviewed either during the audit discussions or during the tour phases of the audit.

The steam plant pollution control equipment, monitoring equipment, and logs of operational changes affecting effluents were inspected. Each of these indicated a high level of commitment to environmental protection.

The ORGDP's emergency preparedness and response capability to environmental emergencies appear to be excellent. Equipment that is stored is inspected on a weekly basis and equipment readiness is documented. A quality assurance assessment of emergency equipment is in draft form. The other installations in Oak Ridge should be made aware of equipment on hand and of the response capability that exists at ORGDP.

A new waste oil and liquid storage facility for materials awaiting incineration is nearing completion. The temporary storage facility in the classified burial ground will be phased out when this facility is completed.

The Environmental Management Department is working very closely with AVLIS management on environmental matters related to the project. These include: obtaining air permits, both construction and operating; identification and quantification of waste streams; and disposal of waste materials. This active participation in facility planning at an early stage is commendable.

The scrap metal cutting and sorting program was reviewed. Excellent access and egress procedures for control of contamination spread from the scrap yard are in place and functioning effectively. Emergency procedures for handling spills and other types of emergencies have been documented and are operative.

NPDES

The NPDES program is undergoing change as a result of the new NPDES permit issued to ORGDP in recent months. The number of sample analyses required per week has increased between 200 and 300 percent. Best available technology (BAT) reviews are required for a number of locations and preparation of these documents is underway. In general, the effluent limits are more restrictive than in the previous permit. To date, concentration limits have been met but some noncompliances in mass loadings have occurred.

The NPDES computer program has some very desirable features such as sample tracking, flagging of sample results which are out of compliance, and immediate availability of completed sample results. A planned improvement to the program is to generate the required monthly NPDES reports by computer. This program improvement is encouraged.

Laboratory Support

The most apparent change in this support program since the last internal audit is the computerization of sample identity and analytical results. This project has been well conceived and well conducted. Using a VAX-11/730 computer and several VT-100 terminals, the system is in operation and very flexible, yet still being improved. The environmental analysis program is the first major activity placed on the system and with the new NPDES permits and other program expansion, the computerization of data is becoming a key element in holding down costs in the laboratory and the Environmental Management Department. At least six laboratory functions approve and enter analytical results to the environmental data base. Included are Environmental Analysis, Radiochemical Analysis, Atomic Spectroscopy, Plasma Emission Spectroscopy, the GC-MS laboratory in Analytical Technology, and the K-1101 Water Laboratory. All sample identification is entered and controlled at one terminal which also serves to generate a printed copy of the approved data for the customer. Each function enters approved data which is accessible by the Environmental Management Department terminal as soon as it is available. Special flagging of out-of-compliance values is included in the program. All computer access is well controlled through entry codes and all data are transferred to a backup tape each day for long-term storage and protection.

The Quality Control (QC) program in the laboratory covers all the important environmental areas. Apparently at least 15% of the analytical work is conducted on QC samples, which compares well with the EPA recommended minimum of 10%. The NPDES samples are supported by use of a contracted program of monthly certified samples supplied by Environmental Research Associates (ERA) which covers about 40 parameters typically measured in effluent waters, including uranium and several organics. Analytical results are treated statistically in the Quality Division at Y-12 which furnishes periodic reports comparing the ORGDP results with those of the other three Energy Systems plants, and with the reference values supplied by ERA. The ORGDP laboratory has maintained a good record of performance in this program.

The radiochemical measurements are controlled by another external QC program administered by the Environmental Measurements Laboratory (EML-DOE) in New York. The ORGDP Laboratory participates in the EML program primarily in the measurements of uranium and plutonium in water, air filters, soil and vegetation. EML receives analytical data regularly and supplies periodic statistical reports which compare results from all DOE laboratories. ORGDP has a fair performance record in the EML program. The latest report, EML-426, indicates that improvement is needed in the measurements or reporting of uranium in air filters and water.

At least 20 internal QC programs are used for daily measurement control. Reference materials are derived from prior external QC supplies, from synthesized or characterized solutions, and from the National Bureau of Standards and EPA. Internal QC programs are used for both radiochemical and nonradiochemical measurements and include many pollutants in water, soil, air filters, and PCBs in transformer oils.

Other elements of laboratory support were examined with less emphasis, but were found to be in good order. These include use of approved procedures, communications, turnaround time, and adequate staff space and equipment. Particularly noteworthy are the use of the computer program for prompt sample tracking and the planned use of the computer for maintaining records of analyst training and certification.

Air Emissions

A non-routine air sampling program is planned in 1984 to sample all discharge stacks at ORGDP with a potential for discharging radioactive materials. Approximately 50 stacks have been identified for sampling. A similar program was conducted in the early 1970's. The current program is being conducted to evaluate new potential release points since the previous survey and provide more accurate emission rates for the plant. It is anticipated that the plant will have no difficulty in complying with the proposed NESHAP's standard for radionuclide emissions.

The Environmental Management Department is actively working with AVLIS management in identifying the need for air permits for this facility. Necessary construction and operating permits for various spray booths, vacuum vents, grit blaster, and oxidation oven will be obtained as expeditiously as possible. This cooperative effort in the planning stages of the facility is to be commended.

There was no evidence that any kind of emissions inventory ledger is being kept so that emissions credit can be claimed for any process or emission which might be shut down or discontinued. Such documentation is necessary to claim emissions credit or show right to discharge when a new facility is to be constructed and put on line in the future.

RCRA

The ORGDP RCRA program seems to be extremely strong. Hazardous wastes are handled as if governed by RCRA regulations and the goal has been to comply with the spirit of RCRA as well as the regulations. Procedures for handling hazards wastes are documented and operative. A contingency plan for RCRA facilities has been incorporated into the SPCC Manual. Commercial disposal is utilized for certain categories of wastes and an effective packaging, manifesting and shipping program is in place. Radioactively contaminated and/or classified hazardous wastes must currently be retained on site. While present capabilities are limited, the 1983 line item program for a PCB and hazardous waste incinerator will expand capabilities for ORGDP and the other plants. A compliance and permitting strategy has been prepared to bring the plant into full compliance with RCRA. The use of an outside contractor to prepare Part B

permit applications is planned. A facility priority schedule has been developed for preparing permit applications which includes closure plans as priority 4 items. It is suggested that for new and existing pure RCRA facilities, the preparation of closure plans be changed to priority 1 items.

PCB

The storage and handling facilities for PCB wastes are adequate, well marked, have secondary containment, and appear to be well maintained. The inspection program exceeds the requirements of the EPA Interim Measures Program. Transformer inspection for leaks are conducted quarterly by the Operations Divisions and any leaks detected are repaired immediately. Inspections, findings, and actions are documented. The EMD audits the inspection program annually and audit results are documented.

Documentation of off-site disposal is good. The EMD maintains the file of original manifests on shipments off-site and the returned manifests from the disposer. The latest complete annual PCB inventory document on file, an EPA requirement, appears marginal. The next annual inventory, due July 1, 1984, is expected to be more complete and contain detailed data on PCB equipment and contents.

Environmental Monitoring

The air, surface water, soil, and stream sediment sampling and analysis program appears quite complete with a reasonable sampling frequency and area coverage. The addition of groundwater monitoring as a significant part of the environmental monitoring program has revealed several areas of uncertainty. While the use of ORNL or other consultants on groundwater program development is intended, additional plant effort to determine groundwater contour levels in areas of concern may provide useful data for such consultants. To this end, it would be advantageous to obtain top-of-well elevations at an early date.

1 DWF #21

ChemRisk/Shonka Research Associates, Inc., Document Request Form 2332

(This section to be completed by subcontractor requesting document)

J. Lamb / K-25 CEP

Requestor / Document Center (is requested to provide the following document)

Date of request 4/28/95 Expected receipt of document 5/20/95

Document number none Date of document ~~n/a~~ 1982-1984

Title and author (if document is unnumbered)

UCC-ND Environmental Program Review

(A) 3 K-25 documents: 1) Ltr from W.J. Thomas to R.H. Jordan dated 8/12/82 — "UCC-ND Environmental Program Review of ORGDP; 2) Ltr from R.H. Jordan to W.J. Thomas dated 7/30/82, UCC-ND Environmental Program Review of ORGDP; and 3) Ltr from R.D. Jordan to W.J. Thomas dated 8/24/84, Energy Systems Environmental Program Review of ORGDP

(This section to be completed by Document Center)

Date request received 4/28/95

Date submitted to ADC — older than 1985

Date submitted to HSA Coordinator 5/2/95 Returned from Y-12 ~~Sent to Y-12 for processing on 05/03/95~~ Recvd 5/15/95

(This section to be completed by HSA Coordinator)

Date submitted to CICO K-25 5/16/95 Y-12 - 1 ltr sent to Y-12 for processing 5/16/95 X-10 - 2 ltrs sent for processing 5/16/95

Date received from CICO

Date submitted to ChemRisk/Shonka and DOE

2332

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

(B) Ltr from L.G. Lee to R.H. Jordan dated 10/29/82, UCC-ND Environmental Program Review of Y-12 — Sent to Y-12 for processing

(C) 2 Ltrs: 1) Ltr from R.H. Jordan to H. Postma dated 10/27/82 UCC-ND Environmental Program Review and (2) Ltr from Jordan to H. Postma dated 11/19/84, Energy Systems External Env. Program Review — Sent to ORNL

UNION CARBIDE

NUCLEAR DIVISION

October 27, 1982

H. Postma, 4500-N, I-210, ORNL/K. W. Sommerfeld

UCC-ND Environmental Program Review

As required by UCC policy and DOE Order 5482.1A, a review of the ORNL environmental program was conducted during the period September 13-16 by a five-man review team representing the UCC-ND Health, Safety, and Environmental Affairs office.

The attached report of the review team reflects the finding that Department of Environmental Management administers an effective, innovative, high quality environmental program which is responsive to the needs of ORNL. The key elements of a good environmental program are in place and are functioning in an effective manner. We will be happy to discuss this report with you or members of your staff.

Please inform me of your plans and/or actions taken to implement any recommendations noted in the report.

The coorperation extended by members of your staff during the review is appreciated.

R. G. Jordan, 9704-2, MS-21, Y-12

RGJ:cm

Attachment

cc/att: J. D. Baker, UCC, HSEA - P-2, Old Ridgebury Road, Danbury, CT 06817
G. G. Fee, 9704-2, MS-14, Y-12
R. F. Hibbs, 9704-2, MS-21, Y-12
C. C. Hopkins, K-1001, MS-133, ORGDP
G. R. Jasny, 9704-2, MS-4, Y-12
C. R. Richmond, 4500-N, I-206, ORNL
W. F. Thomas, K-1001, MS-134
C. D. Zerby, C-100, 127, PGDP
File - RGJ - NoRC

REPORT OF ENVIRONMENTAL PROGRAM REVIEW

OF

OAK RIDGE NATIONAL LABORATORY

Oak Ridge, Tennessee

September 13-16, 1982

BY

H. H. Abee

H. H. Abee, UCC-ND Health, Safety, and Environmental Affairs

S. L. Shell for

R. C. Baker, PGDP Environmental Coordinator

M. E. Mitchell

M. E. Mitchell, ORGDP Environmental Coordinator

M Sanders

M. Sanders, Y-12 Environmental Coordinator

C W Weber

C. W. Weber, UCC-ND Environmental Analysis Coordinator

INTRODUCTION

In accordance with DOE Order 5482.1A and Corporate Environmental Affairs Policy, a review of the ORNL Environmental Program was conducted during the period September 13 through 16 by a five-man team representing the UCC-ND Health, Safety, and Environmental Affairs office. The team members included H. H. Abee, UCC-ND HSEA; R. C. Baker, PGDP Environmental Coordinator; M. E. Mitchell, ORGDP Environmental Coordinator; M. Sanders, Y-12 Environmental Coordinator; and C. W. Weber, UCC-ND Environmental Analysis Coordinator.

A critique of the review team's findings was presented on September 17 to K. W. Sommerfeld, Executive Director; T. W. Oakes, Department of Environmental Management; and J. R. Stokely, Jr., Analytical Chemistry Division.

SUMMARY

The environmental review of ORNL consisted of extensive discussions with Department of Environmental Management, Operations, Maintenance, and Analytical Chemistry personnel on the programs and equipment related to environmental protection and waste management. Tours of waste disposal facilities, environmental monitoring equipment, emergency response equipment, and hazardous waste storage and containment areas provided an opportunity to review the operational status of these facilities and equipment. During the program review, emphasis was placed on the following elements: organization and commitment, procedures, training, communications, facilities/equipment, NPDES, laboratory support, air emissions, RCRA, PCB, and environmental monitoring.

The Department of Environmental Management (DEM) is well staffed with competent personnel who provide an effective, innovative, high quality program which is responsive to the needs of ORNL. Management support is apparent. The DEM has established and documented objectives, and environmental protection procedures are generally complete and well documented. The environmental training program and communications within the organization, both vertically and horizontally, are excellent. The key elements of a good environmental program are in place and are functioning in an effective manner. Any recommendations and suggestions of the review team are contained in the body of the report.

RECOMMENDATIONS

It is recommended that all storage systems for oil and hazardous materials be evaluated to determine if adequate secondary containment is provided for transfer facilities.

Basis: While all observed oil and hazardous material storage tanks were found to be equipped with adequate secondary containment, the containment for the associated transfer facilities appeared to be inadequate for some of the systems. Since the transfer operation often results in spills, adequate secondary containment should be provided for those areas as well as for the storage tanks themselves.

FINDINGS

Organization and Commitment

The Department of Environmental Management (DEM) is well staffed with competent personnel who provide an effective, innovative, high quality program which is responsive to the needs of ORNL. The 24 Division Environmental Protection Officers are being used extensively to provide a great deal of help in the implementation and operation of the environmental program on a divisional basis. The appointment and use of Specialty Coordinators during the last year for certain projects is a new organizational approach which adds another dimension to the environmental protection program.

Management support is apparent from the amount of GPP and operating funds provided even in this period of tight overhead budgets. Other examples of management support are the construction of three meteorological towers, the presentation of environmental protection awards to individuals and Divisions for innovative environmental protection ideas which have scientific merit and/or involve savings, and the assignment of responsibility to the DEM for a five-year environmental planning document for ORNL.

The DEM has established and documented objectives and maintains an opportunities list for planning purposes which is commendable.

Procedures

Environmental protection procedures are generally complete and are well documented in the "Environmental Protection Manual" which is made available to all members of supervision down to the level of Group Leader. Several additional procedures concerning storage and disposal of laboratory chemicals, diking criteria, and tank labeling criteria are under development. Procedures relative to hazardous materials management are documented in the "Hazardous Materials Management and Control Manual." Additionally, detailed information about the specific elements of the environmental program is set forth in a document entitled "Methods and Procedures Utilized in Environmental Management Activities at Oak Ridge National Laboratory." Procedures are reviewed each year for currency and are automatically updated at least every five years. These publications provide excellent auditable documentation of the environmental program.

Training

The DEM is responsible for general environmental training within ORNL, while Divisions are responsible for specific environmentally related training associated with their mission. The DEM is conducting all RCRA training and follows the Corporate guidelines for RCRA training documentation. Records of training for the DEM and Plant and Equipment Division are documented in a computer file.

Types of training activities include (1) presentations at Divisional safety meetings on various environmental policies or procedures and (2) environmental protection seminars, at which major plant-wide programs such as spill reporting and containment are presented. The DEM is currently preparing a video tape which will be used to provide general training on hazardous materials management to ORNL employees.

Internally, the DEM provides the opportunity for each DEM employee to attend one work-related training course of some type each year. Such a program provides for employee growth and potential advancement in their specialty and is to be commended.

Communications

The DEM uses a variety of means to communicate with ORNL personnel including Environmental Protection Bulletins, articles in the Laboratory News Letter, hotline messages, articles in the Laboratory Review Magazine, and direct responses to questions by personnel. Responses to public inquiry (citizens and the press) may be made on a frequency of three or four times per year. General communications on environmental matters, both horizontally and vertically, appears to be excellent at all levels. Communications between the analytical support staff and the DEM staff are excellent. Communication responsibility, in the event of a significant release of materials to the environment, is specifically defined and documented.

Facilities and Equipment

The review of facilities and equipment consisted of an evaluation of processes and procedures related to new project designs and reviews and an evaluation of some selected pollution abatement facilities. The system for Environmental Management review of new projects was found to be effectively organized and planned. Environmental Management personnel receive early notification of new projects and thus become a part of the engineering design team very early in the project. The preparation of all environmental documentation for new projects is the responsibility of the Department of Environmental Management.

Emergency equipment used for responding to spills of oil and hazardous materials and for monitoring of radioactive releases was inspected and found to be in very good shape. Also, the Spill Prevention Control and Countermeasure Plans for oil and hazardous materials were found to be available and up-to-date. The new system for treating coal pile runoff should function satisfactorily in adjusting that stream's pH. The associated solids collection and removal system should also work satisfactorily but will undoubtedly be very labor intensive. The efforts to obtain new automated solids removal and handling equipment appear to be justified economically and are supported.

The sewage treatment facility continues to experience problems in meeting some NPDES limits. The ongoing studies and efforts aimed at remedying these problems are strongly supported.

The new system for recovering silver from waste photographic solution is commendable and may prove to be feasible for use by the other DOE-OR facilities.

Oil and hazardous material storage areas were generally found to be in good condition, including being equipped with adequate diking. Some dikes were observed to be extremely close to the storage tanks so that tank leaks just above the top of the dikes could possibly result in spillage beyond the containment structures. All such dikes should be evaluated and any necessary mitigating actions should be initiated. Also, some storage areas were observed to not have adequate secondary containment around transfer areas. Since the transfer operation is a likely source of spills, these areas should be evaluated to ensure that proper containment is available.

NPDES

ORNL currently has three discharges permitted: White Oak Creek, Melton Branch, and the sewage treatment plant. There are compliance problems of long standing with the sewage treatment plant discharge. There were 111 noncompliances in 1981 with a proportionate number of similar noncompliances to date in 1982. ORNL is operating on an extended NPDES Permit, but like the other UCC-ND Installations, repermitting appears to have a low priority with EPA. When new NPDES Permits are prepared by EPA, ORNL expects to have additional permitted discharge points which will add additional sampling and analysis requirements to the current NPDES program. NPDES monitoring procedures, monitoring equipment, and equipment maintenance and calibration are in good order. Noncompliances are reported promptly and in good format.

Laboratory Support

The Department of Environmental Management (DEM) and the Analytical Chemistry Division have developed a very responsive interaction to support the analytical needs of the environmental program. An Analytical Coordinator, with a good base of experience and training, communicates regularly within both organizations to provide efficient and timely measurements for routine and non-routine monitoring.

All NPDES permit parameters are measured by EPA-approved methods. Non-permit parameters are handled either by EPA methods or methods traceable to EPA, providing a good base for any prospective additions to the NPDES permit program at ORNL. All procedures are subjected to annual review if not updated. Most measurements are made on duplicate subsamples, to improve the quality of reported results. Training of the analytical specialists is adequately documented.

At least a 10% level of quality control analysis is generally used for all types of parameters: organic, inorganic, radiochemical and nonradiochemical. At least three government agencies: EPA, EML-DOE, and NBS provide various QC samples; and one commercial lab (ERA) provides regular certified samples; more frequently, the quality control samples are supplied

from an internal lab, independent of the analytical laboratories conducting the analyses.

Sample tracking in the analytical laboratories is readily done. Daily printout of computerized sample data allows easy review of analytical reporting "turnaround" time. It was noted, however, that reporting time might be further reduced by releasing acceptable results on some parameters before the entire service request is completed. The analytical support staff is familiar with the permit-compliance levels and promptly report all out-of-compliance results as they are produced. The use of reporting units is consistent with the four-plant agreements and only one minor deviation (Cr in water) was noted in the use of agreed Lowest Concentrations Reported.

Air Emissions

In general, the programs pertaining to the control of airborne emissions were found to be functioning satisfactorily. The inventory for airborne emission sources is about 60 percent complete and when finished should provide a valuable reference for this program.

The system for reviewing new projects with respect to the need for state permits appears to be functioning satisfactorily. By utilizing the individual divisional Environmental Protection Officers in this review process, the likelihood of an oversight has been diminished significantly.

The maintenance of the airborne effluent treatment equipment, as well as the sampling and monitoring equipment, is under the oversight of the Department of Environmental Management and appears to be satisfactorily providing the necessary quality control. The efforts expended by the Environmental personnel in auditing the maintenance records is noteworthy.

The levels of releases to the atmosphere, including radioactivity releases, are documented to be extremely small with regard to off-site impacts, and no additional treatment needs are planned at this time.

RCRA

The RCRA program review included examination of the documentation of Part A and Part B permit requirements. Since ORNL does not have the DOE claimed Atomic Energy Act exemption, the documentation was extensive, appeared complete, and of excellent quality. Evidence of the actual implementation of the program was observed by examination of records of training, hazardous waste collection, storage, inter-site shipping, and inspection of storage areas. The storage areas, both in the ORNL and ORNL at Y-12 areas, were undergoing improvement. It appears that the Department of Environmental Management provides a complete disposal service for both hazardous and normal wastes. Various means, such as locked or limited access dumpsters, are used to assure appropriate segregation. Burial ground radiation signs should be inspected and replaced where faded or in poor condition.

Hazardous wastes are packaged under DEM supervision and specifications. The DEM contracts with Chemical Waste Management, Inc. to accept the waste at ORNL for loading and transportation to Alabama for disposal. The DEM is solely responsible to ORNL Management for assuring that all DOE, EPA, and DOT regulations are met and that the disposal does not subject UCC-ND to excessive risk of continuing liability.

PCB Program

PCB materials at ORNL appear to be handled in accordance with EPA regulations implementing TSCA. Inspections of PCB transformers are on a more frequent basis than required by the Interim Measures Program. The PCB inventory appears to be complete. While a record of PCB movements and disposals is not compiled in a single document, the movement and chain of custody is auditable. Retrofilling of PCB contaminated transformers in the fusion energy area is progressing. Storage facilities for PCB materials are adequate although it was stated that storage space was a controlling factor in the rate at which PCB contaminated wastes were being moved for disposal.

Environmental Monitoring

The Environmental Monitoring Program appears to be well organized and satisfactorily meeting its objective of providing relevant, accurate data on all environmental media within, adjacent to, and remote to the ORNL site and the DOE reservation. Some of the monitoring equipment does require abnormally high levels of maintenance and is scheduled for replacement. The justification for replacing this equipment appears valid and is strongly supported.

The programs for routine maintenance and calibration of monitoring equipment are commendable, as is the practice of maintaining good auditable records of these activities.

The new meteorological towers recently installed around the ORNL site are a much needed tool for effecting a comprehensive Environmental Monitoring Program. The data collected from these stations will allow for much more credible evaluations of impacts from routine airborne releases as well as provide great assistance to emergency response personnel during abnormal releases.

The lack of sufficient environmental data from a few areas of the DOE reservation between the facilities has been recognized and plans have been made by ORNL Environmental Management Personnel to fill the voids. Specific efforts planned for the immediate future include the collection of surface water, soil, and vegetation samples.

November 19, 1984

H. Postma/R. S. Wiltshire

Energy Systems Internal Environmental Program Review

As required by Company policy and DOE Order 5482.1A, an audit of the ORNL environmental program was conducted during the period September 25 through 27 by a five-person team representing the Energy Systems Environment, Safety, and Health office.

The attached report of the audit team reflects that the Department of Environmental Management conducts a high quality program which is meeting the environmental protection needs of ORNL. We will be happy to discuss this report with you or members of your staff.

Please inform me of your plans and/or actions taken to implement the recommendations noted in the report.

The cooperation extended by members of your staff during the audit is appreciated.

R. G. Jordan, 1000, MS-214A, ORNL (4-1645) - NoRC

RGJ:HHA:jct

Attachment

cc/att: R. G. Donnelly
G. G. Fee
W. F. Furth
C. C. Hopkins
K. Jarmolow
G. R. Jasny
T. W. Oakes
W. F. Thomas
File - RGJ

bcc: H. H. Abee
L. W. Long
S. Marcus
M. Sanders
C. W. Weber

REPORT OF ENVIRONMENTAL PROGRAM REVIEW

OF

OAK RIDGE NATIONAL LABORATORY

Oak Ridge, Tennessee

September 25-27, 1984

BY

H. H. Abee

H. H. Abee, Energy Systems Environment, Safety, and Health

L. W. Long

L. W. Long, ORGDP Environmental Coordinator

M. Sanders by WSB

M. Sanders, Y-12 Environmental Affairs

S. Marcus

S. Marcus, Y-12 Environmental Affairs

C. W. Weber/jt

C. W. Weber, Four-Plant Environmental Analysis Coordinator

INTRODUCTION

As required by Company Policy and DOE Order 5482.1A, an audit of the ORNL Environmental Management Program was conducted during the period September 25 through 27 by a five-person team representing the Energy Systems Environment, Safety, and Health office. The team members included H. H. Abee, Energy Systems Environment, Safety, and Health; L. W. Long, ORGDP Environmental Coordinator; M. Sanders and S. Marcus, Y-12 Environmental Affairs; and C. W. Weber, Four-plant Environmental Analysis Coordinator.

A critique of the audit team's findings was presented on September 28 to R. S. Wiltshire, Executive Director; D. C. Parzyck, Director, Environmental and Occupational Safety Division; and T. W. Oakes, Environmental Management Department Head.

SUMMARY

The audit of the ORNL Environmental Management Program at ORNL consisted of extensive detailed discussions with Environmental Management and Analytical Chemistry personnel on the programs and equipment related to environmental protection, hazardous materials control, and waste management. Tours provided an opportunity to review the operational status and condition of waste disposal facilities, environmental monitoring equipment and associated facilities, hazardous waste storage and containment areas, meteorological equipment, and emergency response equipment. During the audit, emphasis was placed on the following program elements: organization and commitment, procedures, communications, training, facilities and equipment, NPDES, laboratory support, air emissions, RCRA, PCB, and environmental monitoring activities.

The Department of Environmental Management has a competent staff but recent personnel losses and projected additional work suggests that personnel needs be examined. Management commitment to an effective environmental program is apparent. Development and documentation of procedures is excellent. Communications, both horizontally and vertically, are good. The training program is excellent in design and implementation. Laboratory analysis support is currently adequate for the expanding environmental program. The documentation of chemical analysts training needs general improvement. Facilities and equipment are generally in good condition; however, areas around some monitoring and meteorological stations needs some of the vegetation removed. The establishment of an air emissions sources data base system is a commendable undertaking. The RCRA program appears to be effective. Monitoring for radioactive materials in the environment is well organized and conducted to assess environmental impacts. More attention should be given to monitoring non-radioactive parameters and the groundwater monitoring program for both radioactive and non-radioactive parameters should be reevaluated. The use of pride circles to evaluate internal programs is

commendable. The Department appears to be in urgent need of additional space and an additional vehicle.

Recommendations and suggestions of the audit team are contained in the body of the report.

RECOMMENDATIONS

1. The recommendation from the previous audit should be addressed more aggressively and stated deficiencies corrected in a timely fashion. The recommendation was as follows:

   a) It is recommended that all storage systems of oil and hazardous materials be evaluated to determine if adequate secondary containment is provided for transfer facilities.

   BASIS: Although discussions during the audit indicated that work was ongoing in the Engineering Division to provide improved tank and transfer station facility secondary containment, it was apparent during the tour of facilities that little has been accomplished to correct the deficiencies noted. This remains an area of concern and deserves prompt attention.

2. It is recommended that the groundwater monitoring program for the various storage and disposal sites be reevaluated and a plan developed which adequately addresses non-radioactive as well as radioactive parameters.

   BASIS: Groundwater is sampled from 50 wells and analyzed on a quarterly basis for radionuclides. Of these 50 wells, only 12 are sampled and analyzed for non-radioactive parameters. While radioactivity traditionally has been the pollution problem of primary concern, within today's regulatory climate non-radioactive pollutants have reached major role status. A sound justification for analyzing only 12 wells for non-radioactive parameters is not apparent. A complete reevaluation of the groundwater monitoring program seems appropriate in light of current RCRA and CERCLA regulations and conformity with other groundwater studies being conducted on the Reservation.

FINDINGS

Organization and Commitment

The Department of Environmental Management has a competent staff who are working energetically to provide an effective program to meet the environmental needs of ORNL. Several recent and pending losses of staff members has resulted in reallocation of departmental functions and some loss in efficiency because of differences in personnel experience,

expertise, and proficiency. Expeditious replacement of lost personnel is encouraged. The need for additional personnel in light of anticipated regulatory activity in the environmental area should be evaluated. Active solicitation and utilization of General Staff Environmental assistance is encouraged.

Responsibilities and accountabilities for each staff member have been documented and identified in staff measures of performance. Environmental goals for 1984 were developed but achievement of goals slipped somewhat due to the pressure of unforeseen work which has been required, such as the Oak Ridge sewage sludge problem, etc. Continued use of environmental goals or objectives against which performance of the department as a whole can be measured is encouraged. The use of pride circles to improve program activities and quality assurance is to be commended.

Management commitment to an effective environmental program is reflected by the current support being given to environmental projects outlined in the ORNL 5-year plan and the obvious involvement in providing more effort and funding to solve ORNL's environmental problems.

Procedures

The establishment of a task leader for procedures and training is a new organizational approach which has provided an excellent mechanism for new procedures development and update of old procedures. A considerable amount of procedures work during the last year was noted. The department operating procedures have been updated and will be issued in manual form in the near future. Four new procedures for the Environmental Protection Manual have been issued and another procedure is in the review process. A documented 3-year frequency for procedure review and updating is in place. Specific steps to be taken in evaluation, review, comment, and approval of new procedures have been documented.

Communications

General communications are very good, both horizontally and vertically, at all appropriate levels within the Department and between the Department and other Divisions. Communication of important environmental information and program activities to employees is handled through plant-wide bulletins, safety meeting presentations, messages on the Inside Line, articles in the Laboratory Review Magazine, and by supplying information to the divisional Environmental Protection Officers. Abnormal occurrences or events are communicated to appropriate Management, Energy Systems ESH, and DOE through a communications chain which is documented and understood. Biweekly communication with the Laboratory Executive Director assures Management awareness of important environmental needs and plans.

Training

The training program conducted by the Department of Environmental Management (DEM) is excellent in design, based on continual judgement of

needs and alternatives to meet these needs. This is followed by the training itself, evaluation of results, and assessment of new needs. The program is both internal and outreaching, covering the DEM, the P&E Division employees handling RCRA materials, the EPO's throughout ORNL, and general ORNL employees. The total program is in the charge of a training officer who has organized a variety of methods, and identified a wide range of areas in which training is needed, ranging from regulations and sampling, to Laboratory analysis and quality assurance. The training is provided at several levels, from new employee orientation, through basic needs, to advanced requirements. Resources for training include the EPA, NFPA, ACS, chemical companies, universities, and ORNL itself - where a host of expertise is available.

RCRA is a specialized area but includes training in handling, transportation, safety, and spill management; and of course, all employees must learn what materials in their areas are classified as hazardous. The DEM is attempting to relieve the rest of ORNL from the regulatory burden of RCRA; this means that the department must become well trained as experts.

The general effectiveness of the training program is evaluated by supervisory comment, by certification of key responsibilities, by questionnaires to employees, by audits, and by annual training reviews in the case of RCRA-related functions. Written tests are being considered for the conclusion of specific programs, but this step has not been taken. Documentation of training is excellent; records of personnel training are computerized and reach back several years. These records are kept up-to-date continually.

This training program is certainly among the best seen to date by the audit committee. Many of its features should be attractive to the other plants.

Laboratory Analysis Support

The analytical requirements of the environmental program are expanding and they are being met by the Analytical Chemistry Division in generally good fashion. All measurements are conducted by EPA methods, when available; the program uses the EPA resources. "Methods for Chemical Analysis of Water and Wastes"; the manual SW-846, "Test Methods for Evaluating Solid Wastes;" the 1980 EPA manual on radionuclide measurements; and the DOE-HASL/EML manual on radiochemical methods. In addition, the four-plant Environmental and Effluent Analysis Manual is used, particularly to cover types of samples or parameters not covered by the methods recommended by the regulatory agency. New challenges are often met by development of methods.

The analytical laboratory quality control (QC) program has noticeably improved in the past two years, with specific management for QA/QC better defined. Standards are procurred from NBS, EPA-EMSL, EML-DOE, and ERA (commercial). The number of parameters included in the QC program is still expanding. The administration of the formal QC program is external from the laboratories being evaluated. Quarterly reports are issued as general documentation of QC and problems are brought to each laboratory's

attention immediately. Review of the QC charts showed that 95-97% of the parameters are within control limits at any time. Deviant measurements vary, but when out of limits, the frequency of control analysis is increased until the problem is resolved.

The internal QC program is also very active, keeping control on a day-to-day or batch-to-batch basis. This program efficiently uses standards and reference materials previously used in old external QC programs.

Data control and documentation for long-term storage and retrieval is generally excellent. This includes the identification of internal QC standards which back up the analyses. These responsibilities were in good order two years ago and are even better now, through a better system of computerization and trackability.

More recently with RCRA regulations, organics have become important in environmental control and the analytical support for this monitoring is also following good guidance for required documentation, QC, etc.; however, improvement in these responsibilities is needed in the organic analysis function to provide better control and auditability. In the area of organic analysis by GC, a new device (Nelson Analytrak System) is under examination. This system shows potential for general service in converting analog GC data to digital, comparing it to a memory bank of standard data for organics, identifying and quantitating the unknown species, and preparing a printed report. This system is impressive and may significantly reduce the labor involved in data reduction and calculations. It might also be applicable to analyzers other than GC.

Most areas of the analytical support program are retaining all of the basic facts of analysis for at least three years, in compliance with EPA regulations. A few laboratories have not been retaining the raw data, strip charts, identification of standards applied, etc. Such data must be retained for three years and be retrievable and interpretable by technical personnel other than the originators. This could be a key element of an EPA audit.

The documentation of training of laboratory analysts needs general improvement. While the present staff is quite familiar with the range of capabilities (procedural analysis proficiency) of the analysts in each laboratory group, this knowledge could be rapidly lost in the event of a rash of retirements. It is suggested that the laboratory analyst training be computerized for ready retrieval of such facts as: who can conduct certain procedures, and what procedures can a specific analyst conduct? Such information will provide a better basis for planning for adequate redundancy when staff changes are made through retirements or other terminations, and when work loads change as in the environmental program at ORNL. This computerization, which could be done on a PC if a larger system is not readily available, will also help to instrument a more uniform approach to laboratory analyst certification or qualification.

Facilities and Equipment

The DEM is responsible for the maintenance of their air and water monitoring stations. While the equipment used was in good condition, the plant life surrounding some of these stations has become overgrown. Overgrowth is also a problem in the areas surrounding the 30m meteorological towers. Such vegetation should be removed to the optimum distance from the tower to prevent interference with measurements.

In the environmental audit conducted September 1982, it was noted that there was inadequate secondary containment around transfer stations and storage tanks. This is still an area of concern and deserves prompt attention.

Currently, leaky compressed gas cylinders are taken to an isolated area where the contents are allowed to escape into the atmosphere. While this method is acceptable in most cases, potential problems can result. For example, a leak with a gas such as HF will eventually seal itself; however, after sealing, the internal pressure cannot be determined and the cylinder should be handled as if it were under pressure. Another problem could result if a highly toxic gas were released without any means of detoxification or collection.

The emergency response program appears to be well organized. The number of practice drills is to be commended as is the list of emergency equipment. However, the shortage of vehicles could hamper emergency efforts. In the past year, there were three emergency environmental incidents, all of which were investigated and documented.

Equipment such as the pH meter for the coal pile run-off should be telemetered into the Plant Shift Superintendent's office and equipped with predetermined high and low alarm points to provide continuous surveillance for potential problems.

Air Emissions

Oak Ridge National Laboratory currently has 21 air permits, although several of the main stacks do not have the required permits. Smaller stacks used for research and development purposes are exempt from permitting and as such are not a problem. However, there seems to be difficulty in maintaining an accurate emissions inventory due to the diversity of the emissions. Establishment of the air emission sources data base system should correct this. The data base system may also prove to be very helpful if the State of Tennessee should require permits for research and development (R&D) stacks in the future. It may also be helpful to establish source emission limits for R&D stacks.

Pilot plants should be checked to ascertain that none are process in nature. Any pilot plant systems found to be such do require permits. Also, a permit may be required for the carpenter shop.

RCRA

The RCRA program at ORNL appears to be effective. Part A forms have been submitted for existing hazardous waste facilities and, where applicable, closure plans have been submitted. Also, post-closure plans for storage facilities no longer in use should be developed.

Hazardous waste shipments to off-site locations are packaged, labeled, and manifested properly. Most of these wastes are sent to Alabama and accepted by Chemical Waste Management, Inc. Unannounced visits are made to the disposal site at least once a year. The manifest file, which appears to be in order, is kept on the computer which also has a tracking system for all hazardous chemicals. It might be beneficial to consider enlarging the scope of the tracking system to include non-hazardous materials such as oils, common organics, and acids. Up-to-date and accurate disposal records are maintained by the use of a computerized hazardous waste disposal request form.

The RCRA training program appears to be well organized and informative. The use of a training manual to acquaint workers with the proper handling and safety requirements, and the rules and regulations is beneficial.

Environmental Monitoring

Environmental monitoring includes sampling air, surface and ground water, soils and sediments, and vegetation. Approved sampling methods are used where available to give an adequate characterization of the plant's impact on the surrounding areas. However, more attention should be given to monitoring non-radioactive parameters and a program more consistent with those in effect at the other installations should be implemented and maintained.

Currently, groundwater is sampled from 50 wells for radionuclides on a quarterly basis. Out of these 50, only 12 are sampled for non-radioactive parameters. A sound justification for analyzing only 12 wells for non-radioactive parameters is not apparent. The number of wells monitored for both radioactive and non-radioactive parameters should be reevaluated. Similarly, with respect to air monitoring, there should be a greater effort toward monitoring non-radioactive parameters.

An effort is underway to standardize water sampling techniques. Although still on an informal basis, the EPA Region IV has now made available recommended sampling procedures for groundwater, soil and sediment. These and other future sampling guidelines will improve the accuracy and repeatability of the resulting data.

NPDES Program

The ORNL NPDES program appears to be adequate at this time. All liquid effluents have been characterized and documented. With the exception of the sewage treatment plant, effluents are in compliance with current limits. Flow measuring, monitoring, and sampling equipment are excellent.

The main concern at this time is the renegotiation of the NPDES permit and the installation of facilities required to meet the new limits. Each discharge point has been characterized and efforts are currently underway to identify the source of the various pollutant parameters. This effort should be pursued rapidly since this information is vital to developing the technology based permit and will be needed for long range design features in future facilities. Many of the planned projects to treat ORNL effluents are long range (completion 1991, etc.); this means that these facilities will not come on-line until after the five-year expiration date on the permit currently being renegotiated. It is highly unlikely that this will be acceptable to regulatory agencies. ORNL personnel are well aware of this problem and are looking for mechanisms to resolve this concern.

PCB Program

The PCB program appears to be adequate to meet the requirements of the regulations. Materials are properly stored, labeled, and marked. The interim measures program of inspection is in place. The program is well documented with an up-to-date inventory. All disposal activities are well documented with legitimate firms. A computer program is utilized to flag stored material after six months, which aides in assuring material is never stored for more than the one year regulatory requirement.

All of the pure PCB transformers are contained inside buildings. It is suggested that a review be conducted to assure that building ventilation air intakes are not adjacent to these transformers.